

Squamous Odontogenic Tumor

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Abstract A 24 year male presented with a radiolucent lesion associated with the right maxillary canine. Histologic examination of the biopsy material resulted in a diagnosis of squamous odontogenic tumor a rare, benign epithelial odontogenic neoplasm. The clinical, radiographic and morphologic features of the squamous odontogenic tumor are discussed.

Keywords Squamous odontogenic tumor · Odontogenic · Jaw · Mandible · Radiography

History

A 24-year-old-male presented with an incidentally discovered intra-osseous lesion in a periradicular association with the right maxillary canine. A mild degree of expansion of the facial surface and some root divergence was noted. On palpation, the area was slightly compressible but non-painful. There was no drainage or purulence from the area. The duration of the lesion was unknown.

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Radiographic Features

Dental radiographs revealed a circumscribed, but non-corticated lytic lesion associated with right maxillary canine. The radiolucency was triangular in shape, with its base towards the root apices (Fig. 1). The periapical film revealed a slight loss of definition at the margin and extensive vertical bone loss (Fig. 2).

Treatment

The lesion “shelled out” from the surrounding bone and grossly consisted of compressible, circumscribed fibrous tissue. Thorough curettage was performed as an excisional biopsy. After establishment of the histologic diagnosis, the site was re-entered. Judicious peripheral ostectomy was performed and non-salvageable dentition was removed. Bone grafting with immediate implant placement was performed. The area healed well and was subsequently restored with a functional prosthesis.

Diagnosis

Histologic examination revealed a proliferation of variably shaped and sized islands of cytologically bland squamous epithelium set in a moderately cellular fibrous stroma (Fig. 3). The islands were predominately solid, with focal microcystic vacuolization and rare dystrophic calcifications. Basal mitotic figures were readily identified, but hyperchromasia, columnar cells and peripheral nuclear palisading were noticeably absent (Fig. 4). Scattered chronic inflammatory cells were present in the stroma. The



Fig. 1 The panoramic radiograph demonstrates the radiolucent nature, slight root divergence and inverted triangular configuration of the SOT in the right maxillary canine region



Fig. 2 Periapical radiograph reveals an extensive lytic osseous defect associated with the right maxillary canine. There is some loss of definition of the non-corticated osseous margin

histomorphologic features were characteristic of a squamous odontogenic tumor (SOT).

Discussion

The squamous odontogenic tumor is a rare, benign epithelial odontogenic neoplasm first described by Pullon et al. [1]. This proliferation of mature squamous epithelium may arise from the rests of Malassez or other residual odontogenic rests [2–4]. SOTs generally occur in adults,

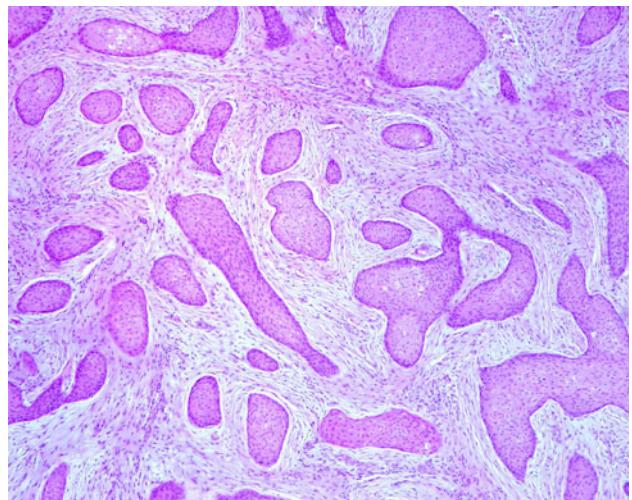


Fig. 3 The tumor consists of multiple rounded and irregularly shaped islands of squamous epithelium set in fibrous stroma

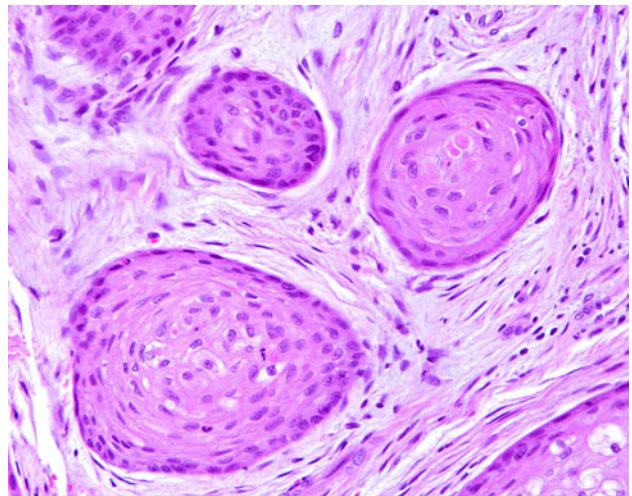


Fig. 4 On higher magnification, the bland squamous cytomorphic features and lack of ameloblastic differentiation are evident

but have a wide age range with cases reported from childhood to the eighth decade. Men and women are affected with approximately equal frequency. Patients with multiple SOTs, involving multiple jaw quadrants, have been described. One case of familial involvement with three siblings affected by multicentric SOTs has been reported [5–7]. The SOT has a tendency to arise in the premolar-canine region of the maxilla and the molar region of the mandible, but can occur throughout the jaws. The typical presenting complaint is of an asymptomatic swelling in the alveolar process. Affected teeth may be mobile and, rarely, mild discomfort is reported. A number of cases are incidental discoveries on routine dental radiographs. Radiographically, the most common presentation is a

unilocular, often triangular, radiolucent defect between or along the roots of adjacent teeth. This is not pathognomonic and can mimic severe periodontal bone loss. As in the current case, root divergence may be present. Circumscription is characteristic, but the margin may or may not be corticated. An ill defined radiographic margin can suggest a more aggressive process. In addition to advanced periodontal bone loss, Langerhan's cell histiocytosis, lateral periodontal cyst, odontogenic keratocyst (keratocystic odontogenic tumor) and central odontogenic fibroma may warrant consideration in the radiographic differential diagnosis. It is noted that most odontogenic cysts and tumors will retain at least a minimal intact rim of bone at the alveolar crest. Rare, advanced cases of SOTs present as multilocular radiolucencies. Microscopically, the SOT consists of cytologically bland squamous epithelium embedded in a moderately cellular fibro-collagenous stroma. The epithelium is arranged in rounded or irregular islands that can vary significantly in size and shape. Thin epithelial cords may anastomose between tumor islands. The squamous islands are smoothly contoured and well demarcated from the stroma. A limited degree of central cystic degeneration is common and there may be scattered calcifications. Significantly, ameloblastic differentiation in the form of peripheral columnar cells with nuclear palisading is noticeably absent in SOTs. The squamous odontogenic tumor-like proliferations seen in the walls of inflammatory odontogenic cysts are not considered to be a manifestation of the SOT [8]. The primary histologic differential diagnostic considerations for SOTs are acanthomatous and desmoplastic variants of ameloblastoma, but, as noted above, ameloblastic differentiation does not occur in the SOT. Gingival squamous cell carcinomas may be very well differentiated and invade alveolar bone but will display microscopic evidence of malignancy. Similarly, bland islands of squamous epithelium are not features of primary intraosseous/odontogenic carcinomas.

The SOT is considered amenable to conservative surgical removal in the form of local excision or thorough curettage. Removal of an affected tooth or teeth may be required to ensure adequate access for complete removal. Slightly more aggressive intervention may be indicated for lesions of the maxilla. Recurrence is rare and attributed to incomplete removal of the initial tumor [2, 4, 9].

Disclaimer The opinions and assertions expressed herein are those of the authors and are not to be construed as official or representing the views of the Department of the Army, Department of the Navy or the Department of Defense.

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